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ABSTRACT

This module on medical terminology (prefixes) is one of 17 modules designed for individualized instruction in health occupations education programs at both the secondary and postsecondary levels. This module consists of an introduction to prefixes, a list of resources needed, and three learning experiences. Each learning experience contains an overview, an objective (e.g., given information concerning the prefixes commonly used in medical terminology, identify the prefix with its proper meaning), and two to three activities (e.g., with the "Seek and Find Prefixes" puzzle provided, see how many you can find; review the list of common prefixes). Information sheets (such as lists of prefixes and puzzles are generally provided for each activity. To provide feedback to students, a self-check with model answers is given for the first two learning experiences; a student performance assessment form for use by the instructor follows the third learning experience and completes the module. (KC)

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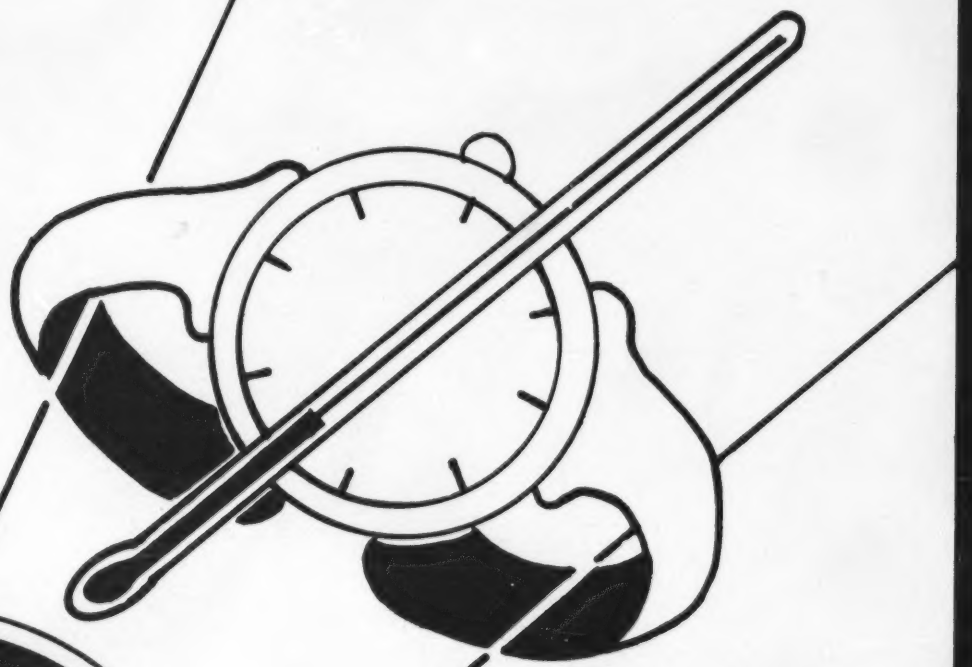
HEALTH OCCUPATIONS EDUCATION MODULE



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MEDICAL TERMINOLOGY: PREFIXES

HEALTH OCCUPATIONS MODULE

designed for the purpose
of individualizing instruction
in the health related occupations
program.

Prepared by...

Temple University of the Commonwealth System of Higher Education

Philadelphia, Pennsylvania

DEPARTMENT OF VOCATIONAL EDUCATION

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BUREAU OF VOCATIONAL EDUCATION

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There are no prerequisites to this module.

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INTRODUCTION

Nonmedical persons are often confused by the terms used by the medical profession to describe symptoms, illnesses and operations. A study of the medical vocabulary will show that it is made up largely of many variations and combinations of prefixes, suffixes and root words.

Knowledge of medical terminology is required of all persons in a Health Occupations Cluster. You need familiarity with the terminology even to find the term in a medical dictionary.

The following learning experiences will enable you to develop competence in the use of many common medical terms.

This module puts its emphasis on prefixes.

There are three objectives:

Terminal Objective: In an actual school situation, use the proper prefix related to each meaning studied. Your performance will be assessed by your resource person, using the "Student Performance Assessment Form," p. 26, (Learning Experience III).

Enabling Objectives:

1. Given information concerning prefixes commonly used in medical terminology, identify the prefix with its proper meaning (Learning Experience I).

2. After completing the required reading, use some common prefixes to form medical terms. Identify these terms with their proper meaning (Learning Experience II).

RESOURCES

Listed below are the outside resources which supplement those contained within the module. Check with your resource person to determine the availability and location of the resources.

Learning Experiences I & II -- Optional Resource:

Reference: Fisher, J. Patrick: Basic Medical Terminology, Indianapolis, Indiana; the Bobbs-Merrill Publishing Company, 1975. Includes cassette tapes.

Learning Experience III -- Required Resource:

* An actual school situation in which you use the proper terminology related to each unit studied.
* A resource person to assess your competency in establishing criteria for student performance in the use of this module.

LEARNING EXPERIENCE I

OVERVIEW

Enabling Objective

Given information concerning the prefixes commonly used in medical terminology, identify the prefix with its proper meaning.

Activity 1

Study the list of prefixes and their meanings.

Optional Activity

With the "Seek and Find Prefixes" puzzle provided, see how many you can find.

Optional Activity

Given a list of various prefixes and a list of meanings, match the proper prefix with the correct meaning.

Feedback

Evaluate your competency by comparing your completed "Self-Check" with the "Model Answers." The "Self-Check" in this situation will be a crossword puzzle. Given the meanings of the prefixes across and down, provide the prefixes for the corresponding numbers on the puzzle.

(Activity 1)

PREFIXES AND THEIR MEANINGS

A study of the medical vocabulary will show that it is made up largely of many variations and combinations of prefixes, suffixes and root words.

This is a module about prefixes.

The part of the word that comes before the root and changes the meaning of the root is the prefix. It often describes position, action and amount in relation to the root word. For example: hyperglycemia. "Hyper-" is the prefix meaning excessive. The parts combined mean "excessive blood sugar."

Common Prefixes:

PREFIX	MEANING
a-, an-	lack of
ab-	away from
ad-	to, toward
amb-, ambi-	both
anti-	against
bi-	two
chemo-	chemical
circum-	around
co-	together
di-	double
dis-	apart
dys-	pain
ex-, exo-	outside
hetero-	unlike
hyper-	above, excess
hypo-	below, deficient
im-, in-	in, into
infra-	below, beneath
inter-	between
intra-	within, into
macro-	large
mal-	bad
meg-, mega-, megalo-	large, enlargement

(Common Prefixes - cont'd)

PREFIX	MEANING
mes-, meso-	midline, middle
micro-	small
multi-	many
neo-	new
para-	near, next to
per-	through
peri-	around
poly-	many
post-	after
pre-	before
pro-	in front of
pseudo-	false
semi-	part, half
sub-	under
super-, supra-	over, above
sym-, syn-	with, together
trans-	across
tri-	three
ultra-	beyond, excess
uni-	one

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(Activity 2)

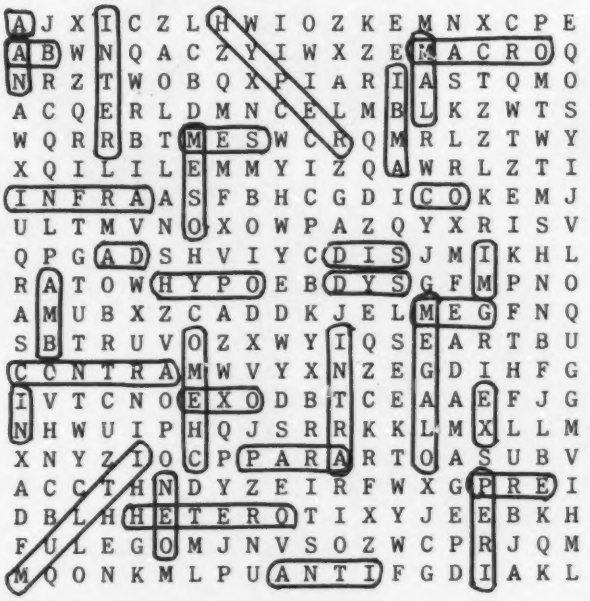
SEEK AND FIND PREFIXES

Instructions: The prefixes listed in the left-hand column are hidden in the block of letters -- forward, backward, up, down and diagonally. Find each one and box it in. Some prefixes may overlap others. How many of the 33 prefixes can you find?

A-
AB-
AD-
AMB-
AMBI-
AN-
ANTI-
CHEMO-
CO-
CONTRA-
DIS-
DYS-
EX-
EXO-
HETERO-
HYPER-
HYPO-
IM-
IN-
INFRA-
INTER-
INTRA-
MACRO-
MAL-
MEG-
MEGALO-
MES-
MESO-
MULTI-
NEO-
PARA-
PERI-
PRE-

A J X I C Z L H W I O Z K E M N X C P E
A B W N Q A C Z Y I W X Z E M A C R O Q
N R Z T W O B Q X P I A R I A S T Q M O
A C Q E R L D M N C E L M B L K Z W T S
W Q R R B T M E S W C R Q M R L Z T W Y
X Q I L I L E M M Y I Z Q A W R L Z T I
I N F R A A S F B H C G D I C O K E M J
U L T M V N O X O W P A Z Q Y X R I S V
Q P G A D S H V I Y C D I S J M I K H L
R A T O W H Y P O E B D Y S G F M P N O
A M U B X Z C A D D K J E L M E G F N Q
S B T R U V O Z X W Y I Q S E A R T B U
C O N T R A M W V Y X N Z E G D I H F G
I V T C N O E X O D B T C E A A E F J G
N H W U I P H Q J S R R K K L M X L L M
X N Y Z I O C P P A R A R T O A S U B V
A C C T H N D Y Z E I R F W X G P R E I
D B L H H E T E R O T I X Y J E E B K H
F U L E G O M J N V S O Z W C P R J Q M
M Q O N K M L P U A N T I F G D I A K L

Solution to the "Seek and Find Prefixes" puzzle on the preceding page:


A J X I C Z L H W I O Z K E M N X C P E
A B W N Q A C Z Y I W X Z E M A C R O Q
N R Z T W O B Q X P I A R I A S T Q M O
A C Q E R L D M N C E L M B L K Z W T S
W Q R R B T M E S W C R Q M R L Z T W Y
X Q I L I L E M M Y I Z Q A W R L Z T I
I N F R A A S F B H C G D I C O K E M J
U L T M V N O X O W P A Z Q Y X R I S V
Q P G A D S H V I Y C D I S J M I K H L
R A T O W H Y P O E B D Y S G F M P N O
A M U B X Z C A D D K J E L M E G F N Q
S B T R U V O Z X W Y I Q S E A R T B U
C C N T R A M W V Y X N Z E G D I H F G
I V T C N O E X O D B T C E A A E F J G
N H W U I P H Q J S R R K K L M X L L M
X N Y Z I O C P P A R A R T O A S U B V
A C C T H N D Y Z E I R F W X G P R E I
D B L H H E T E R O T I X Y J E E B K H
F U L E G O M J N V S O Z W C P R J Q M
M Q O N K M L P U A N T I F G D I A K L

(Activity 3)

MATCHING

Match the given prefix with its correct meaning. Write the letter of the correct meaning on the line in front of the number of the prefix to be defined.

PREFIX	MEANING
_____ 1. hyper-	A. many
_____ 2. multi-	B. bad
_____ 3. pseudo-	C. under
_____ 4. tri-	D. large
_____ 5. para-	E. near, next to
_____ 6. uni-	F. above, excess
_____ 7. per-	G. against
_____ 8. semi-	H. beneath, below
_____ 9. mal-	I. around
_____ 10. macro-	J. two
_____ 11. infra-	K. after
_____ 12. sub-	L. three
_____ 13. anti-	M. one
_____ 14. peri-	N. false
_____ 15. trans-	O. over, above
	P. part, half
	Q. across
	R. through

Answers to the matching exercise on the preceding page:

O 1.

A 2.

N 3.

L 4.

E 5.

M 6.

R 7.

P 8.

B 9.

D 10.

H 11.

C 12.

G 13.

I 14.

Q 15.

FEEDBACK

Evaluate your competency by comparing your completed "Self-Check" with the "Model Answers." The "Self-Check" in this situation is the crossword puzzle on the following page. Given the meanings of the prefixes across and down, provide the prefixes for the corresponding numbers on the puzzle.

SELF-CHECK

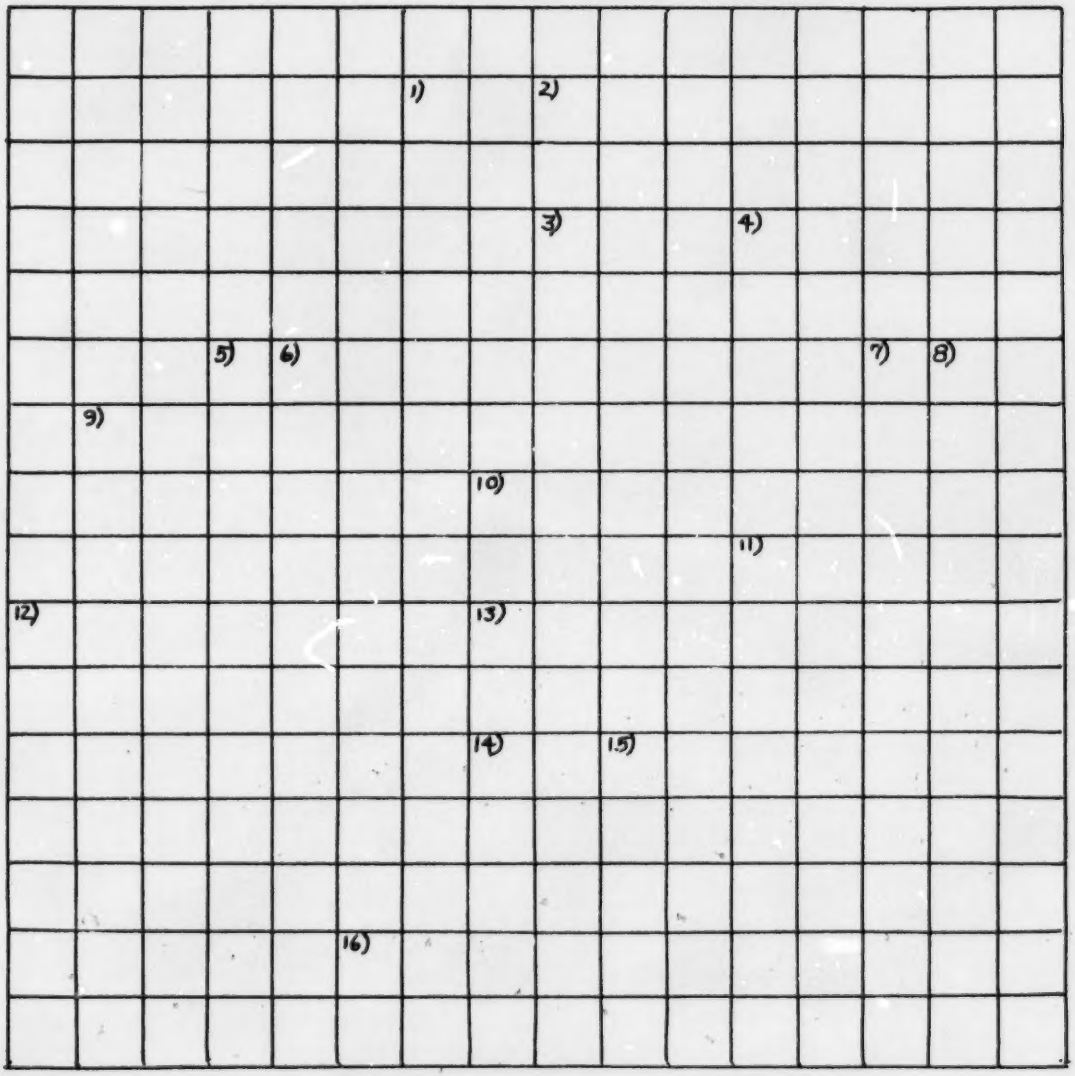
CROSSWORD PUZZLE

Across

1) part, half
3) around
5) false
7) apart
10) three
11) small
12) unlike
13) both
14) over, above
16) beyond, excess

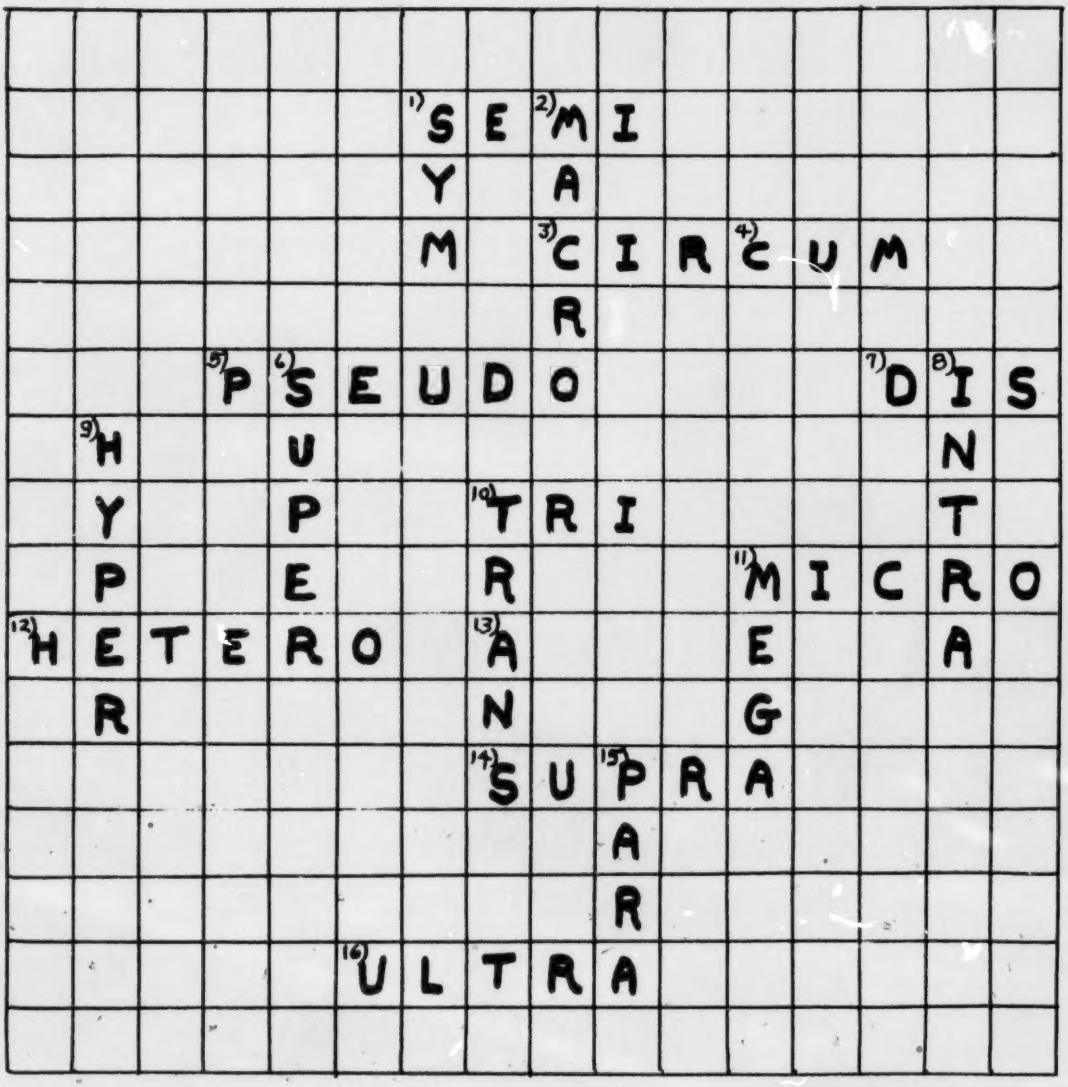
Down

1) with, together
2) large
4) together
6) over, above
8) within, into
9) above, excess
10) across
11) large, enlargement
15) near, next to



FEEDBACK: MODEL ANSWERS

Solution to the crossword puzzie on the preceding page:



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LEARNING EXPERIENCE II

OVERVIEW

Enabling Objective

After completing the required reading, use some common prefixes to form medical terms. Identify these terms with their proper meaning

Optional Activity

Review the list of common prefixes.

Activity 1

Practice writing the prefix, the meaning of the prefix, and an example (medical term). Pronounce the prefix, using the pronunciation guide in the parentheses.

Feedback

Evaluate your competency by comparing your completed "Self-Check" with the "Model Answers."

(Optional Activity)

Review the list of common prefixes, pp. 5-6.

(Activity 1)

Using the "Practice Sheets," practice writing the prefix, the meaning of the prefix and an example of its occurrence in a medical term. Pronounce the prefixes and the words, using the pronunciation guides in the parentheses.

PREFIX	MEANING OF PREFIX	EXAMPLE
1. bi-, bin- (bi), (bin)	two, double	bisexual (bi-seks' u-al)
2. di- (di)	two, twice	diplegia (di-ple' ji-ah)
3. infra- (in' fra)	below	infra-red (in' fra-red")
4. inter- (in' ter)	between	intercostal (in' ter-kos" tal)
5. intra- (in' tra)	in, within	intravenous (in' trah-ve" nus)
6. mes(o)- (mes' o)	middle	mesoderm (mes' o-derm)
7. hyper- (hi' per)	above, excess	hyperplasia (hi' per-pla" ze-ah)
8. hypo- (hi' po)	below, deficient	hypoplasia hi' po-pla" ze-ah)
9. semi- (sem' e) (sem' i)	half	semilunar (sem' e-lu" nar)
10. sub- (sub)	under, below	subacute (sub' ah-kut")

PRACTICE SHEET

(Activity 1 -- cont'd)

	PREFIX	MEANING OF PREFIX	EXAMPLE
11.	super- (su' per)	above, over	superior (su-pe' re-or)
12.	supra- (su' prah)	above, over	suprapubic (su' prah-pu" bik)
13.	ultra- (ul' trah)	above, excess	ultrasonic (ul' trah-son" ik)
14.	uni- (u' ne)	one	unilateral (u' ne-lat" er-al)
15.	ab- (ab)	absent, away from	abduct (ab-dukt')
16.	ad- (ad)	to, toward	adduct (ah-dukt')
17.	ambi- (am' be)	both, both sides	ambidextrous (am' be-dek" strus)
18.	circum- (ser' kum)	around	circumcorneal (ser' kum-kor" ne-al)
19.	trans- (trans)	across, through	translucent (trans-lu' sent)
20.	extra- (eks' trah)	outside of, beyond, in addition to	extrasensory (eks' trah-sens" or-y)

PRACTICE SHEET

FEEDBACK: SELF-CHECK

Evaluate your competency by filling in the blanks below. Compare your completed "Self-Check" with the "Model Answers" on the next page.

	PREFIX	MEANING OF PREFIX	EXAMPLE
1.	inter-	_____	intercostal
2.	hyper-	_____	hyperplasia
3.	semi-	_____	semilunar
4.	_____	across, through	_____
5.	super-	_____	superior
6.	_____	below	_____
7.	ambi-	_____	ambidextrous
8.	intra-	_____	intravenous
9.	bi-	_____	bisexual
10.	mes-, meso-	_____	mesoderm

FEEDBACK: MODEL ANSWERS

	PREFIX	MEANING OF PREFIX	EXAMPLE
1.	inter-	between	intercostal
2.	hyper-	above, excess	hyperplasia
3.	semi-	part, half	semilunar
4.	trans-	across, through	translucent
5.	super-	above, over	superior
6.	infra-	below	infra-red
7.	ambi-	both	ambidextrous
8.	intra-	in, within	intravenous
9.	bi-	two	bisexual
10.	mes-, meso-	midline, middle	mesoderm

LEARNING EXPERIENCE III

(Please note: You may choose to complete this learning experience without completing the first two experiences, if you think you have the proficiency to do so.)

OVERVIEW

Terminal Objective

In an actual school situation, use the proper terminology related to each unit. Your performance will be assessed by your instructor, using the "Student Performance Assessment Form."

Activity 1

Practice writing the prefix, spelling the prefix, giving the meaning of the prefix and pronouncing the prefix.

Activity 2

Write a medical term which includes a prefix.

Write the name of an organ of the body in several different ways, using various prefixes, such that the prefix indicates a change in the position, action or amount of the organ.

Activity 3

A. Practice and repeat Activities 1 and 2 above until you have mastered them.

B. When you are satisfied that you have mastered Activities 1 and 2, raise your hand to notify your instructor that you are ready to demonstrate your skill.

C. Have the instructor evaluate and check each step on the "Student Performance Assessment Form," which is part of this module.

(Activity 1)

Practice writing the prefix, spelling the prefix, giving the meaning of the prefix and pronouncing the prefix.

(See pages 5, 6, 16, 18 for a review of this material.)

(Activity 2)

A. In the space below, write a medical term which includes a prefix.

B. In the space below, write the name of an organ of the body in several different ways, using various prefixes, such that the prefix indicates a change in the position, action or amount of the organ.

(Activity 3)

A. Practice and repeat Activities 1 and 2 (pages 23, 24) until you have mastered them.

B. When you are satisfied that you have mastered Activities 1 and 2, raise your hand to notify your instructor that you are ready to demonstrate your skill.

C. Have the instructor evaluate and check each step on the "Student Performance Assessment Form," on page 26. The instructor may wish to write additional comments on page 27.

STUDENT PERFORMANCE ASSESSMENT FORM

MEDICAL TERMINOLOGY - PREFIXES

	Satisfactory	Unsatisfactory
1. Pronounced the prefix correctly at least 7 out of 10 times.		
2. Spelled the prefix accurately at least 80% of the time.		
3. Defined the meaning of the prefix properly at least 80% of the time.		
4. Used the prefix correctly in a medical term; pronounced and spelled the term correctly at least 8 out of 10 times.		
5. Changed the indication of the position, action or size of an organ by changing the prefix in a medical term -- at least twice.		